

Claims

1. Device for transfer printing of an electrostatically charged toner image from an intermediate carrier (10) of an electrographic printing or copying device onto a recording medium (24, 24'') and fixing of the transfer-printed toner image onto the recording medium (24, 24''),
5

in which the recording medium (24, 24'') lying on an electrostatically-chargeable transport ribbon (54) and adhering thereto due to electrostatic forces is transported through a transfer printing region (28) and along a guided transport section subsequent to this,
10

and in which the recording medium (24, 24'') is conveyed to a fixing device (36), whereby
15

the guided transport section is arranged in a transport unit (78) and the fixing device (36) is arranged in a fixing unit (80) that are used independent of one another in the printer or copier and can be removed from these, whereby the fixing unit (80 [sic] has at least one wall (88, 90) that is designed as a hollow chamber profile (88, 90) and that hinders a heat transfer from the fixing unit (80) to the transport unit (78).
20

2. Device according to claim 1 or 2 [sic], in which the at least one wall is designed as a hollow chamber profile (88, 90). [sic]
25

3. Device according to claim 3 [sic], in which the hollow chamber profile (88) has openings (92) through which air is drawn to cool the transport unit (78).

4. Device according to claim 3, characterized in that the openings (92) in the hollow chamber profile (88) are arranged such that air is taken up into the
30

hollow chamber profile (88) from the environment of the transport ribbon (54).

5. Device according to claim 3 or 4, in which an ozone filter is provided to filter the air taken up into the hollow chamber profile (88).
5
6. Device according to any of the claims 3 through 5, in which a fan is provided to draw the air into the hollow chamber profile (88), which fan runs for a predetermined time span after the deactivation of the printing or copying device.
10
7. Device according to any of the preceding claims, in which the transport ribbon (54) is a plastic ribbon with a specific volume resistance of between 10^{11} and $10^{15} \Omega\text{cm}$.
15
8. Device according to claim 7, in which the transport ribbon (54) is essentially comprised of polyvinylidenfluoride (PVDF).
9. Device according to any of the preceding claims, in which the recording medium (24, 24'') is conveyed to the fixing device (36) (in which it is again guided in a fixed manner) along a free transport section (subsequent to the guided transport section) in which the recording medium (24, 24'') can freely arch.
20
10. Device according to any of the preceding claims, in which the length (L_1) of the guided transport section is at least $1/3$ of the length of the shortest recording medium to be printed.
25
11. Device according to any of the preceding claims, in which the length (L_1) of the guided transport section is between 100 mm and 210 mm.
30

12. Device according to any of the claims 9 through 11, in which the length (L_2) of the free transport section is at least $1/3$ of the shortest recording medium to be printed and is shorter than the length of the shortest recording medium to be printed.
- 5
13. Device according to any of the claims 9 through 12, in which the length (L_2) of the free transport section is between 80 mm and 130 mm.
14. Device according to any of the preceding claims, in which the speed (v_f) with which the recording medium is conveyed through the fixing device (36) is between 97% and 100% of the speed (v_0) with which the recording medium is transported in the guided transport section.
- 10
15. Device according to any of the preceding claims, in which, at the end of the guided transport section, the transport band (54) is guided around a roller (56) that has a specific volume resistance of 10^7 to $10^9 \Omega\text{cm}$.
- 15
16. Device according to claim 15, in which the roller (56) is made from silicon.
17. Device according to claim 15 or 16, in which the roller (56) is a drive roller.
- 20
18. Device according to any of the preceding claims, with a discharge device (84) to discharge the toner located on the recording medium (24, 24'').
- 25
19. Method for transfer printing of an electrostatically charged toner image from an intermediate carrier (10) of an electrographic printing or copying device onto a recording medium (24, 24', 24'') and fixing of the transfer-printed toner image onto the recording medium (24, 24''),
- 30

in which the recording medium (24, 24'') lying on an electrostatically-chargeable transport ribbon (54) and adhering thereto due to electrostatic forces is transported through a transfer printing region (28) and along a guided transport section subsequent to this,

5

and in which the recording medium (24, 24'') is conveyed to a fixing device (36), whereby

10

the guided transport section is arranged in a transport unit (78) and the fixing device (36) is arranged in a fixing unit (80) that are used independent of one another in the printer or copier and can be removed from these whereby the fixing unit (80) has at least one wall (88, 90) that is designed as a hollow chamber profile and that hinders a heat transfer from the fixing unit (80) to the transport unit (78).

15

20. Method according to claim 19, in which the hollow chamber profile (88) has openings (92) through which the air is drawn to cool the transport unit (78).

20

21. Method according to claim 20, in which air is taken up into the hollow chamber profile (88) from the environment of the transport ribbon (54).

22. Method according to claim 20 or 21, in which air taken up into the hollow chamber profile (88) is filtered with an ozone filter.

25

23. Method according to any of the claims 19 through 22, in which the transport ribbon (54) is essentially comprised of polyvinylidenefluoride (PVDF).

30

24. Method according to any of the claims 19 through 23, in which the recording medium (24, 24'') is conveyed to the fixing device (36) (in which

it is again guided in a fixed manner) along a free transport section (subsequent to the guided transport section) in which the recording medium (24, 24'') can freely arch.

- 5 25. Method according to any of the claims 19 through 24, in which the length
 (L₁) of the guided transport section is at least 1/3 of the length of the
 shortest recording medium to be printed.
26. Method according to any of the claims 19 through 25, in which the length
10 (L₁) of the guided transport section is between 100 mm and 210 mm.
27. Method according to any of the claims 24 through 26, in which the length
 (L₂) of the free transport section is at least 1/3 of the shortest recording
 medium to be printed and is shorter than the length of the shortest recording
15 medium to be printed.
28. Method according to any of the claims 24 through 27, in which the length
 (L₂) of the free transport section is between 80 mm and 130 mm.
- 20 29. Method according to any of the claims 19 through 28, in which the speed
 (v_f) with which the recording medium is conveyed through the fixing
 device (36) is between 97% and 100% of the speed (v₀) with which the
 recording medium is transported in the guided transport section.
- 25 30. Method according to any of the claims 19 through 29, in which the toner
 located on the recording medium (24, 24'') is discharged with the aid of a
 discharge device (84).